Childbearing and Wellbeing:
A Comparative Analysis of the European Community

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Summary

Fertility rates in contemporary Europe have reached dramatically low levels. In light of this we are interested in the extent to which childbearing events may worsen individuals' material wellbeing. Using a sample of women drawn from the European Community Household Panel Survey, we make a comparison of the impact of childbearing on wellbeing using a welfare regime classification. Recognising that poverty status is a poor proxy for wellbeing, we also derive several measures of wellbeing that are multidimensional in nature. These measures are referred to as deprivation indices and avoid the poor/non-poor dichotomy. We provide descriptive statistics of poverty status and deprivations indices, as well as an analysis of a more causal nature, the latter consisting of a Difference-in-Differences estimator combined with Propensity Score Matching techniques (DD-PSM). We find that in all welfare regimes, independent of how wellbeing is defined, childbearing events never have a positive impact on individuals' wellbeing. But our estimates are largely consistent with welfare regime theory: women in the Social Democratic welfare states suffer the least as a result of childbearing, where as women in Conservative and Mediterranean states suffer significantly more. For the Liberal welfare regime the results are more mixed, and depends on the definition of wellbeing.

We are currently working on further extensions of this work, analysing data for the 8th wave; estimating the impact of childbearing events by parity, developing appropriate deprivation indices.

(A) 1. INTRODUCTION

A striking feature of Western contemporary society, and of great concern to policy makers, is the emergence of dramatically low fertility rates. Comparing current Period Total Fertility Rates (PTFR) to the levels of the 1960s it is clear that all Western European countries have seen a substantial decline (Castles, 2003; Kohler et al., 2002). Though the great majority now have PTFR well below replacement levels, there is still a substantial variation across countries. Whereas Mediterranean countries are struggling with extremely low fertility rates, spearheaded by Italy and Spain with PTFR levels around 1.20 and 1.16 in 1998 respectively, the situation is somewhat different, for instance, in Scandinavian countries, where the average PTFR is around 1.69 (in 1998). Similarly, considering Liberal welfare states, such as the UK and the US, fertility levels remain relatively high. The reasons for the general fertility decline, and the emergence of "lowest-low" fertility rates in Mediterranean countries, are widely debated in the social sciences (Castles, 2003; Billari and Kohler, 2002). Whereas economists have emphasised increasing costs of children and opportunity costs among women, mainly as a result of increased educational attainment and labour market participation (Del Boca, 2003 and 2004), sociologists and demographers have put more emphasis on changes in attitudes and value orientations (van de Kaa, 2001). Social Policy research emphasises the inadequate response of the welfare state in providing adequate services for a rapidly changing society, both in terms of family formation and labour market behaviour (Esping Andersen, 1990 and 1999).

Irrespectively of the various explanations offered, a natural question to ask in this context is to what extent couples in European contemporary society associate childbearing with their general own wellbeing? Is it for instance the case that couples

choose to have fewer children because childbearing is generally associated with an intolerable increase in direct and indirect costs and efforts? This is of course a central question for policy makers, since one possible remedy for the low fertility levels is to promote childbearing through social policies and family benefits.

In this paper, applying different measures of wellbeing, we use six waves from the European Community Household Panel to analyse to what extent childbearing events affects individuals' material wellbeing. Obviously, within the European Union countries differ not only in terms of current fertility levels, but also in their systems of social policy and family support. For instance, the social democratic welfare states, mainly comprised of the Scandinavian countries, provide much more generous child-care support compared to the Mediterranean countries. It is frequently argued that such differences in child-care provision are important in explaining the fertility differentials, the main argument being that the welfare provision in Social Democratic welfare states actively facilitates childbearing.

However, from an empirical point of view the effects of such differences are difficult to establish. For a start, welfare generosity does not only depend on monetary amounts, but also on the extent the system offers flexibility of working hours and parental leave. Thus welfare provision and the way it interacts with individuals' perception of wellbeing are complex, and difficult to capture in empirical analysis. Our strategy is to organise the analysis around the welfare regime typologies outlined be Esping-Andersen (1990) and elaborated by Ferrera (1996), Trifiletti (1999) and Mayer (2001). Though this is a rather indirect approach to identify the effect of differences between welfare regimes, it does provide insight into the link between childbearing events and wellbeing. It does, for instance, demonstrate how wellbeing is affected

differently in countries where welfare provision to families with young children is generous, such as Scandinavian ones, as opposed to countries with a much lower level of generosity, such as the Mediterranean countries. An important issue concerns the definition of wellbeing. Frequently poverty status is used as a proxy. However, dividing the population into a simple dichotomy of "poor" and "non-poor" is clearly an oversimplification. An alternative approach would be to recognize the fact that wellbeing is multidimensional - depending on a range of factors – not only monetary wellbeing. As a result we introduce various deprivation indices, which takes into account non-monetary aspects of wellbeing.

Our analysis consists of two parts. First we present descriptive statistics of wellbeing, measured both in terms of poverty status and deprivation indices, by family status, for the four different welfare regimes. In the second part we make an attempt to identify causal effects by focussing on the extent to which childbearing events lead to changes in wellbeing. We do so by implementing a procedure commonly referred to as Propensity Score Matching, in which women are grouped by their background characteristics. For each homogenous group of women we compare the wellbeing outcomes of those women who experience childbearing to those who do not.

The paper is outlined as follows. Section 2 summarizes the relevant background for our analysis – with a particular emphasis on welfare regimes theory. Section 3 gives a brief description of the ECHP data. Section 4 explains how we define wellbeing and put particular emphasis on the construction of the deprivation indices. Using these wellbeing definitions, the section provides interesting descriptive patterns of poverty and deprivation for different family types and welfare regimes. Section 5 explains the

methodological strategy for the causal analysis and presents the results, whereas section 6 concludes.

(A) 2. BACKGROUND

Frequently wellbeing is analysed in terms of poverty status and poverty head count ratio (HCR). Though the use of poverty status is a gross simplification, it does provide a useful starting point for assessing how individuals' wellbeing is determined. Out of the many sources of income available to the household – labour income is by far the most important. Needless to say the likelihood of household poverty decreases with the number of employed family members, but increases with increasing number of dependent family members - such as children. Bane and Ellwood (1986) using American data show that changes in demographic status – particularly childbearing – are strongly linked to entering poverty. More recently for the United Kingdom Jarvis and Jenkins (1996) using the British Household Panel Survey, support these findings, and show that a significant proportion of those who enters poverty do so as a result of increased family sizes, though the main source of poverty entry is from becoming unemployed. A recent descriptive analysis comparing poverty dynamics in six OECD (Organisation for Economic Co-operation and Development) countries highlights the importance of both family and employment change (CASE, 1999). This study also shows that for all countries households particularly vulnerable to long-term poverty are female-headed household and single adult households with children. Computing poverty rates for different countries before and after social benefits payments, they found that for the UK there is only a small difference, whereas in countries such as Germany, the

Netherlands and Sweden the difference is considerable, a feature that is largely due to the stronger social safety net in these countries.

In so far individual wellbeing is defined in terms of income or poverty status it is clear that wellbeing depends upon generosity of state welfare linked to childbearing, such as child benefits and child services, but also the structure of the labour market – especially in terms of facilitating female labour force participation. A fruitful approach to make inference about the role of social policy and provision of services is therefore to compare countries that differ significantly in these respects. One way of doing this is to follow to the welfare regimes classification outlined by Esping Andersen (1990), though several authors have suggested to separate out the Mediterranean countries from the Continental welfare regimes (Ferrera, 1996; Trifiletti, 1999; Mayer, 2001). The welfare regimes can then be classified as follows (1) Social Democratic, with generous and universal entitlements, (2) Conservative, in which social policies are linked to earnings and occupation, - and an emphasis on the family and communities as a means to provide social support, (3) Liberal, emphasising the role of the market to provide services, and where benefits are to a much greater extent means-tested, and (4) Mediterranean, where public support is limited and a greater reliance on family relations to provide social support.

The four welfare regimes differ in terms of social benefits in two important dimensions: 1) Family leave policy, and 2) Early childhood education and services. For instance, family leave in Social democratic states amounts to an average 37.5 weeks, whereas it is only 14.5 weeks in Conservative welfare states, and only 5 weeks in Liberal welfare states (Gornick and Meyers, 2003). Moreover, Social Democratic states promote a considerable higher level of gender equality in their family leave policies.

The welfare regimes differ considerably in terms of the extent care is provided <u>publicly</u>. Social Democratic countries have the most extensive provision of public childcare for children in the age range of 1 to 3, whereas in contrast, both Mediterranean and liberal welfare states provides hardly any public childcare for children of this age group. Conservative countries have also quite poor provision of public childcare for very young children, but considerably better for children in the age group 4 – 5. Overall it is clear that both flexibility and generosity of social benefits are considerably better in Social Democratic and Conservative welfare states, and is likely to contribute significantly to the material wellbeing of household, and therefore promote childbearing (Gornick and Meyers, 2003).

As for labour market regulations the four regimes also hold significant differences. To a large extent this is reflected in the marked differences in female labour market participation. In Sweden for instance, the employment rate among mothers with children under age 6 is around 85%, whereas the average of Spain, Greece and Italy, in contrast, is only 45% (OECD, 2001). The latter three countries are also the ones with the lowest fertility rates. Though these patterns may reflect differences in value systems and attitudes to childrearing, it is reasonable to believe these differences are also driven by difficulties in re-conciliating childbearing and work activities, mainly due to a lack of flexible working hours and part time work, which is much more common in Social Democratic states, but rare in Mediterranean countries (Esping-Andersen, 1999). Southern European labour markets are in fact highly regulated both in terms of hiring and firing. These rules severely restrict opportunities for labour market entrants, a feature which has been claimed to be the main reason for high unemployment rates among women and young people (Del Boca, 2004). Unemployment among young

people and women reduces of course current household income, and is likely to lead to postponements both in union formation and the onset of childbearing. The Italian labour market, for instance, is characterised by a high level of rigidity, with a strong protection for those in full-time employment, and very little protection for those in temporary. Moreover, part-time jobs are rare, but often the kind of jobs preferred by mothers. Interestingly childcare is rather limited for children under three years old, both in terms of availability and in the number of hours offered on a day-to-day basis. This implies that public childcare does not in fact provide much support to those in full time work – making child rearing and work a difficult combination. Often married women are forced to choose between not working or working full-time (Del Boca et al 2003).

(A) 3. DATA

Our analysis is based on data from the European Community Household Panel (ECHP), which is a multi-dimensional and multi-purpose survey centrally designed and co-ordinated by the Statistical Office of the European Community (EUROSTAT). Starting in 1994, the ECHP provides information from six waves for Denmark, Germany, The Netherlands, Belgium, Luxembourg, France, United Kingdom, Ireland, Greece, Italy, Spain, and Portugal, and, starting from 1996, four waves are available for Austria and Finland. A Swedish sample is also available but it is not longitudinal and is consequently excluded from our analysis. A great advantage of the ECHP is the scope for comparability among countries in the European Union, together with the fact that it provides up-to-date information. A drawback of the panel is the lack of retrospective information. For instance, parental information cannot be recovered if the respondent has left the parental home in the first wave. Furthermore, retrospective information in

terms of demographics and labour market experiences is limited (see Nicoletti and Peracchi, 2002 and Peracchi, 2002, for a general review of the quality of the ECHP). However the ECHP contains fairly detailed information about the current demographic status, as well as detailed information concerning income, employment and schooling.

(A) 4. MEASURES OF WELLBEING

(B) 4.1 Monetary wellbeing

Our measure of monetary wellbeing is here given by the poverty headcount ratio, where household poverty status is derived from the net household income. When assessing economic wellbeing it is paramount to adjust for the income needs of households of different characteristic. This needs clearly depends on the composition of the household and the age distribution of the family members. Moreover it depends on the extent to which economy of scales within the household is exploited. Such adjustment is conventionally dealt with by applying an equivalence scale. Studies have shown that the composition of poor households depends quite markedly on the choice of equivalence scale, whereas the actual poverty ranking of countries tends to be unaffected (e.g. de Vos and Zaidi, 2003). We include therefore two different equivalence scales. The first is the modified OECD scale, which gives a weight of 1 for the first adult, 0.5 for any other adults, and 0.3 for each child. The second is the Fuchs scale (Fuchs, 1986), where the first adult is given a weight of 1, other adults a weight of 0.8, the first child 0.4, and any other children 0.3. Compared to the OECD scale, the Fuchs scale gives a higher weight to other adults and a slightly higher weight to the first child - a feature that should be reflected in our estimates (see Section 5). It is important to be aware that the use of

equivalence scales in this manner assumes that household members share the income equally. However, this is not necessarily the case. For instance, there is ample evidence to suggest that the hypothesis of "income pooling" among married couples is rejected (Browning et al 1994; Lundberg et al 1997), instead giving support to bargaining models (e.g. McElroy and Horney 1981).

The poverty threshold is here set to 60 percent of the median level of the net equivalised household income. Thus, and individual is deemed poor if the income of the household, to which he or she belongs, is below this threshold. Descriptive statistics from the European Household Panel shows how poverty rates differ across welfare regimes. Figure 1 shows strong variation in poverty rates. Social Democratic states have the lowest (12%), whereas the Liberal welfare states have the highest (20.7%) closely followed by the Mediterranean states (18.6%). The next columns show poverty rates by household composition. It is of particular interest to see that among Social Democratic welfare states poverty remains low for all household types with children. In fact, poverty rates for households with less than three dependent children (excluding single parents) remain lower than households with two adults with no children. Comparing this with the other welfare states, we see that households with children tend to have higher poverty rates than those without children. This is especially the case for Liberal welfare states. These trends are also evident in Figure 2, which shows poverty rates by age groups for two different household types. Again Social Democratic welfare states have considerably lower poverty rates, with the Liberal welfare states having the highest poverty rates. These differences indicate strong differences in family related welfare provision. In general they confirm the widely held belief that Social Democratic welfare

regimes, and to a large extent Conservative welfare regimes, provide much more generous family support.

[FIGURE 1 AND 2 HERE]

(B) 4.2 Poverty deprivation indexes

The drawbacks of using poverty status as an analytical measure of wellbeing are well known. Dividing the population into a simple dichotomy of "poor" and "non-poor" is clearly an oversimplification. Wellbeing is not a single attribute that characterises an individual or household in terms of its presence or absence, nor does it take into account that wellbeing is multidimensional (Betti and Verma, 2002). That is, individuals' wellbeing is unlikely to depend on <u>monetary</u> wellbeing alone. Recently considerable research has been undertaken to develop multidimensional measures. We follow this literature closely and define several deprivation indices, which generally depend on a range of characteristics of the household (see, among the others, Miceli, 1998; Mencarini, 1999 and Qizilbash, 2001, for applications of this approach).

In brief the approach can be explained as follows. A range of "items" believed to be important for individuals' perception of wellbeing is chosen. These items might be ordinal variables, either given as yes-no dichotomies or ordered scales. Moreover, these items might be subjective in nature, expressing individuals' perception of their economic situation, or any other relevant dimension of their current situation. These indicators are then "summarised", using an appropriate weighting scheme, to construct a composite index, ranging from 0 (no deprivation) to 1 (max deprivation). The technical approach is based on "fuzzy systems" and follows closely Betti and Verma (2002),

which builds on the suggestion by Cerioli and Zani (1990) and elaborated by Cheli and Lemmi (1995). Eurostat officially recognised and adopted this approach in 2002 (EUROSTAT (2002). The majority of the items under consideration here are simple 'yes/no' dichotomies. A value of 1 is assigned if the item is present and 0 if the item is absent. Some items may involve more than two ordered categories. Similarly to dichotomous items equally spaced values in the range 1-0 can be assigned to an ordered polytomy:

$$v_{(m)}=(M-m)/(M-1)$$

where individual j is ranked m on M ordered categories, with $m=1$ the most deprived to $m=M$ the least deprived.

From the ECHP data we identified 25 items that may be used to define the deprivation index (see Table 1). One serious issue here is that many of the items might be correlated. For instance, if a household does not possess a television – it is also unlikely that they possess a video recorder. Similarly, a dwelling plagued by damp walls is also likely to have rot in the windowsills. Failing to control for these correlations may make some households disproportionately deprived. As a result we perform a factor analysis to identify groups of items that are highly correlated within, but uncorrelated between. Largely consistent with Whelan et al (2001) we identify five groups: (1) "Affordability" dimension, based on subjective information on the ability of the household to make the ends meet, to keep the house warm, to go on a week holiday away from home and so on; (2) "Housing deterioration", based on the physical characteristics of the dwelling, such as leaky roof, dampness and rot; (3) "Environmental problems", based on noise from neighbours, pollution, vandalism and crime; (4) "Secondary deprivation", based on non-essential durables, such possession of

a car, video recorder and so on; (5) "Essentials", based on essential housing facilities such as having a bath and shower, and durables, such as television and telephone.

Of course, lack of a particular consumer good does not necessarily reflect deprivation. Rather they might simply reflect individuals' preferences. For instance, some individuals may have a high income but choose not to have a television. To account for this, only households that specifically indicated in the questionnaire that they were unable to afford the item, as opposed to a simple possession/non-possession dichotomy, were recorded as a symptom of deprivation.

The indices of the various variables are defined over their weighted sum:

$$f(x_i) = \frac{\sum_{j=1}^{J} g(x_{ij}).w_j}{\sum_{j=1}^{J} w_j} \qquad (i = 1, ..., I)$$

where w_j is the weight. Two important issues determine the calculation of the weight. The first is the item's power to distinguish individuals in the population. For instance, items of deprivation that affect only small proportions of the population are considered more critical, and consequently given a larger weight. Secondly, it is adjusted according to the extent to which the item is correlated with other items. Specifically, the weight depends on the inverse of the average measure of its correlation with all other variables (see Betti and Verma, 2002 for technical details). In total we calculate six deprivation indices. The first is based on all 25 items listed in Table 1, whereas the remaining five are specific to each subgroup. The indices are calculated separately for all countries and for all waves.

Computing deprivation indices based on the ECHP is not, however, without problems. On several occasions there has been routing problems in questionnaires,

severely restricting variables to be included. Moreover, only a handful of the variables in Table 3 are available for Luxembourg and Germany. Accordingly these countries were excluded from the analysis. Many items were also missing for the UK sample in the first two waves, which were also excluded from the analysis.

Table 2 gives the mean deprivation levels for each of the welfare regimes. Looking at the total deprivation (first column) we see that the Social Democratic countries have the lowest deprivation level, whereas the Mediterranean countries have the highest. Interestingly this pattern is similar to the poverty rates reported in Figures 1 and 2. Looking across the other five indices we see that the pattern of deprivation by welfare regimes persist to a large extent. However, for the groups concerning household characteristics and environmental items, Conservative countries score better than Liberal countries. As expected we see that there is very little deprivation in terms of essential durables. Figure 3 presents the total deprivation level for different welfare regimes and different household composition. Not unexpected single parents have the highest levels of deprivation. Looking across the different household types, concentrating on households with two adults, we see that deprivation does not vary much by the number of children. This is somewhat different to the case of poverty status, which seems more sensitive to the amount of children present in the household.

Finally in Figure 4 we see that the level of deprivation is not particularly sensitive to the age of the individuals, in so far they have no children. Among those who have children we see that deprivation becomes lower with higher ages, though overall the effect is not particularly pronounced.

[TABLES 1, 2, AND FIGURES 3, 4 HERE]

(A) 5. Causes and effects: the impact of childbearing on wellbeing

The descriptive statistics show interesting patterns of poverty and deprivation for different groups in society and for the welfare regimes under study. However, the reported statistics do not say much about whether - or to what extent - childbearing events may lead to higher levels of deprivation. For instance, in Figure 3 we notice that one-person households are generally less deprived with respect to single parent households, but it is unclear whether the higher deprivation of the latter household is a cause or a consequence of the presence of children. Nevertheless, from a social policy point of view this is an important issue: sensible policies aimed at improving wellbeing associated with childbearing, can only be successfully implemented as long as one knows the causal direction of the effects.

In this section we implement a method with the aim of establishing whether childbearing events do have a causal impact on poverty and deprivation, and if so, establishing the magnitude and the differences between welfare regimes. We apply this technique on different measures of wellbeing (as described previously). In particular we are interested in (1) whether the use of different wellbeing measures provide different conclusions about the causal effects, and (2) whether different measures of wellbeing provide different conclusions about the effect of childbearing across different welfare regimes.

5.1 Methodological approach

A possible approach to assess the impact of childbearing on wellbeing would be to compare the wellbeing of women who experience a childbearing event to those women who do not experience such an event. To a large extent this is what we have done in the presentation of the descriptive statistics in the previous section. However, a quick glance at Table 3, which provides the mean values of certain background variables by women who experience a childbearing event and women who do not, demonstrates quite clearly that these two groups of women are very different in almost all of their characteristics. The implication, of course, is that computed differences in wellbeing are highly likely to be confounded by these background variables, a feature that needs to be adjusted for. The ideal setting would be to compare a woman's level of wellbeing when experiencing a childbearing event to its <u>counterfactual</u>, which here would be the case when the <u>same</u> woman <u>does not</u> experience such an event. Such a comparison would enable us to single out the effect on wellbeing that is only attributable to the childbearing event. The problem of course is that for the same individual these two scenarios are mutually exclusive. In other words the counterfactual is indeed non-existent, which clearly impedes such a comparison.

[TABLE 3 HERE]

However it is possible to overcome this problem by constructing an approximation to the counterfactual with the help of what is known as Propensity Score Matching (PSM) (Rosenbaum and Rubin 1983). This approach borrows heavily from the treatment effect model, which is generally concerned with estimating the impact of treatments, such as labour market training, on the expected income. In simple terms the application of this method for our case can be outlined as follows. Women are divided

into two types: those who experienced a childbirth (D_i=1) and those that do not (D_i=0).
Women are then matched by pairing units who undertook treatment (i.e. D_i=1) with
units of comparison (i.e. D_i=0) that are <u>similar</u> in terms of their observable
characteristics prior to the event. When the relevant differences between treated and
controls are captured by observable covariates, matching methods yield an <u>unbiased</u>
estimate of the average impact of childbirth on treated. The matching approach is
generating the conditional expectation of the outcome variable on observable covariates.
Rosenbaum and Rubin (1983) proved that conditioning on a one-dimensional variable,
namely the conditional probability of receiving treatment - in our case having a child -
given the set of covariates X, which is referred to as propensity score, is equivalent to
conditioning directly on the set of background variables X. The propensity score for
individual *i* is defined as:

$$P(X_i)=Pr(D_i=1|X_i) \tag{1}$$

where X_i is the vector of explanatory variables recorded prior to the childbearing event.
According to Rosenbaum and Rubin (1983), if exposure to treatment is random within
each cell as defined by X_i, it will also be random within cells defined by the propensity
score variable $P(X_i)$. This is commonly referred as conditional independence or strong
ignorability which means that conditional on X (the observable variables) – the outcome
Y is independent on assignment to treatment. Provided the conditional independence
assumption holds, one may proceed to the matching stage, when treated and comparison
units are paired according their scores. Here we use what is called "Nearest Neighbour
Matching" to perform the matching (see Becker and Ichino, 2002, and Smith and Todd,
2000 for details concerning the other matching methods).

A drawback of this method concerns the strong ignorability assumption as it conjectures that selection occurs only on the basis of observable characteristics. Clearly selection may also take place on the basis of unobservable characteristics. Based on this Heckman et al. (1997) proposed to combine a Difference-in-Differences (DD) estimator to the matching procedure. In essence this implies comparing the mean change of wellbeing from one time period to another of participants, with the mean change of wellbeing for the same time period for non-participant. An important advantage of the DD estimator is that it allows us to control for selection into the treatment group caused by unobserved variables. That is, provided unobserved heterogeneity is time-fixed, its effect will be netted out by taking first difference (Heckman et al., 1997). There is still an open debate on the reliability and the robustness of results produced by cross-sectional matching estimators (e.g. Dehejia and Wahba, 1998, 1999 and Smith and Todd, 2000) but it is generally acknowledged that the DD-PSM estimator is robust as it eliminates temporarily-invariant sources of bias.

All of the analysis is implemented by the use of the psmatch2 module in STATA (Leuven and Sianesi 2003), and the analysis is performed separately for the four welfare types previously outlined. The matching procedure based on the PSM implies that all variables listed in Table 3 have to be balanced between treated and control units. Satisfying the balancing property is in our case a non-trivial exercise. The main difficulty comes from the fact that different countries are pooled into the same samples. This forced extensive use of interactions sometimes using higher order terms. Thus the specification of the propensity score changes with the sample and the more unbalanced the sample is - the greater need for interaction terms. In all samples the variables which are suspected to confound the effect of fertility on poverty are included in the estimation

of the PSM: age, number of children, partnership status, well-being level prior the event, education and employment status.

5.2. Results

The results are reported in Table 4. We start by considering the impact on poverty status for which parameter estimates are given in the first two rows of the table. The figures refer to the <u>change</u> in entering poverty as a result of a childbearing event. For instance a parameter estimate of 0.071 refers to a 7.1 percent change in the rate of entering poverty caused by having another child. We present these estimates for the two equivalence scales described in section 4. As can be seen from Table 4 this certainly have an impact on the estimates. The difference is mainly caused by the different weights for additional adults present in the household, whereas both scales are fairly similar in terms of the weight imposed by children present in the household. Thus, the impact of an additional child from one period to the next will have a stronger impact when using the OECD scale - simply because the difference in weights between additional adults and children is smaller.

Looking across the estimates for different welfare regimes, we see that the ranking remains robust independent of the type of equivalence scale. For the Social Democratic states an additional child entering the household increases the rate of entering poverty by 1.6 %, which is lower than all the other regimes. The largest change in entering poverty is found among women in Liberal welfare states, in which the increase in the rate of entering poverty is 5.6 percent when using the OECD scale, and 7.1 percent when using the Fuchs scale. The estimates for Conservative and Mediterranean welfare regimes are similar and located somewhere between the Social Democratic and the Liberal.

Overall, these results are fairly consistent with welfare regime theory, and also fairly consistent with Figure 1 which shows poverty rates in terms of the Head Count Ratio (HCR). It shows that Social Democratic welfare states have a much lower HCR, which can be seen as a measure of "egalitarianism" in those countries. Consequently, a negative income shock in Social Democratic countries, here caused by childbirth, is less likely to translate into entering poverty. Conversely in Liberal welfare states, a smaller drop in household income is required for entering poverty. The fact that women in Social Democratic welfare states has the lowest rate of entering poverty signals the generosity of family support policies. Most women tend to work prior to childbearing, which in effect implies a substantial drop in labour income for most households when childbearing takes place. On average Scandinavian women tend to stop working for 37 weeks after childbearing (Gornick & Meyer 2003). However, the very small impact on the poverty rate suggest that parental leave and child support policies is able to compensate for most of the income lost due to childbearing. In contrast, women in Southern Europe have considerably lower participation rates. As a result, they do not "loose" out in terms of salary loss, but the risk of poverty gets significantly higher due to increased family size and low family allowances.

Next we consider estimates concerning the deprivation indices. In general we would expect childbearing to have different impacts on the indices. For instance, it is likely that an additional child have a detrimental impact on individuals' evaluation of affordability, whereas it is less likely that it will have a strong impact on environmental deprivation, the latter expected to remain fairly stable over time – independent of couples having children or not. Similarly, the deprivation index comprising of essential items is expected to remain fairly stable. These expectations are confirmed by our

estimates. Apart from the Conservative welfare regimes, "affordability" worsens significantly when a child is added to the household. In contrast, there is no significant impact on deprivation in terms of essential items. Looking across welfare regimes we notice that the impacts on deprivation in terms of affordability is fairly consistent with the patterns found for poverty entry as reported above. For instance, the worsening in affordability is smallest in Social Democratic states and largest among Liberal welfare states, whereas again Conservative and Mediterranean countries are rather similar. Thus in so far deprivation is summarised in terms of individuals' subjective perception of affordability the results are qualitatively consistent with the use of poverty status. Moving on to deprivation defined over household characteristics we see more mixed results. This index includes items describing the general condition of the household, but also whether individuals consider the household to have adequate space. This latter item is likely to have a pivotal effect since an additional child in the household will necessarily make it more crowded. The estimates suggest a significant worsening among Mediterranean countries and a weakly significant worsening among Social democratic states, but no significant impact on the remaining states. Moving onto the index capturing environmental items, we would again expect this to remain fairly stable over time, and unlikely to be affected significantly by childbearing events. Nevertheless our estimates suggest a significant worsening among Conservative states and, somewhat weaker effect, among Social Democratic states. The reason for this effect is a bit unclear. It seems unlikely that prospective parents are forced to move to a more deprived area (i.e. cheaper housing) as a result of having another child. A more plausible explanation is that they change their attitudes towards environmental problems

in their neighbourhood once a(nother) child is born. Obviously, we are unable to make any inference on which of these sources drive our results.

The next two indices, luxuries durables and essential items are also expected to remain stable and unaffected by childbearing events. Our results confirm this conjecture to a large extent.

Finally, considering the total deprivation index, which includes all deprivation items, we see some interesting results. As expected Social Democratic states show again the smallest deterioration in deprivation as a result of childbearing events. Somewhat unexpected we also find childbearing to have no significant effect on wellbeing for the Liberal welfare regime. Though we would be very reluctant to suggest any definite link on this point, it is interesting to observe that these two types of welfare regimes also have the highest fertility levels. In contrast the increase in deprivation is significant in Conservative welfare states and largest in Mediterranean countries. Of course, these are the welfare regimes with the lowest fertility levels.

[TABLE 4 HERE]

(A) 6. CONCLUDING REMARKS

It is important to be aware of some of the shortcomings of our analysis. For instance, the analysis does not capture well any dynamics and interactions between childbearing and labour market behaviour. Rather it captures only the net effect caused by a childbearing event. Moreover, consequences incurred by childbearing are long lasting. This is of course relevant given that welfare benefits and services vary in duration and flexibility. Finally, the analysis does not distinguish between birth parities.

Clearly wellbeing may be affected differently depending upon the parity, which again will have interesting policy implications.

Despite these caveats, we consider it interesting and illuminating that in all welfare regimes considered, independently of how wellbeing is measured, childbearing is <u>never</u> found to have a positive impact on individuals' material well-being. This should perhaps serve as an eye-opener for policy makers, given that fertility levels across Europe are generally well below replacement. Looking across welfare regimes we find patterns that are fairly consistent with welfare regime theory. When considering monetary measures of wellbeing, i.e. poverty status derived from the net equivalised household income, we see that the ranking across countries is fairly robust with regards to which equivalence scale applied. The most consistent result is that couples in Social Democratic welfare states are always less worse off than their European counterparts. To what extent can these results be linked to observed fertility levels? Of course, fertility levels in Social Democratic welfare states are higher than those observed in Conservative and Mediterranean states, and as such our results are consistent. Nevertheless, fertility levels are also higher in Liberal welfare regimes compared to Conservative and Mediterranean. On this point our results produce more mixed results. On one hand we find that childbearing events in Liberal states have a strong impact on poverty and deprivation in terms of affordability, which is <u>inconsistent</u> with the higher fertility levels. However, when considering the <u>Total</u> Deprivation index we see effects, which are <u>consistent</u> with observed fertility levels.

Another issue concerns the magnitude of these effects. In general the effects are quite modest. In the worst-case scenario we find childbearing events to increase the entry rate into poverty by 7.1% (Liberal welfare states). This figure is consistent with

findings by Jenkins and Jarvis (1999) using the BHPS, but as they report in their findings, the impact of becoming unemployed has a considerably larger impact on actually entering poverty.

A useful contribution of our analysis is the use of several measures of wellbeing. At the outset it is difficult to get a good grasp of what a change in the deprivation index really means. For instance, does a deterioration of 0.011 in total deprivation represent a substantial change? Compared to changes in poverty status one is inclined to believe that deprivation is probably not dramatically affected by a childbearing event. Though our analysis is able to confirm many of the hypotheses put forward by welfare regime theory, as well as quantifying the effect on well-being – caused by childbearing events, it is also clear that the analysis is not well designed to make strong predictions on overall fertility levels. Given that this link is only implemented in an indirect way (by comparing welfare regimes), such inference will necessarily be of a qualitative nature.

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Figure 1: Means of poverty status derived from 60% of total net equivalised household income by welfare regimes* and household type (weighted data)
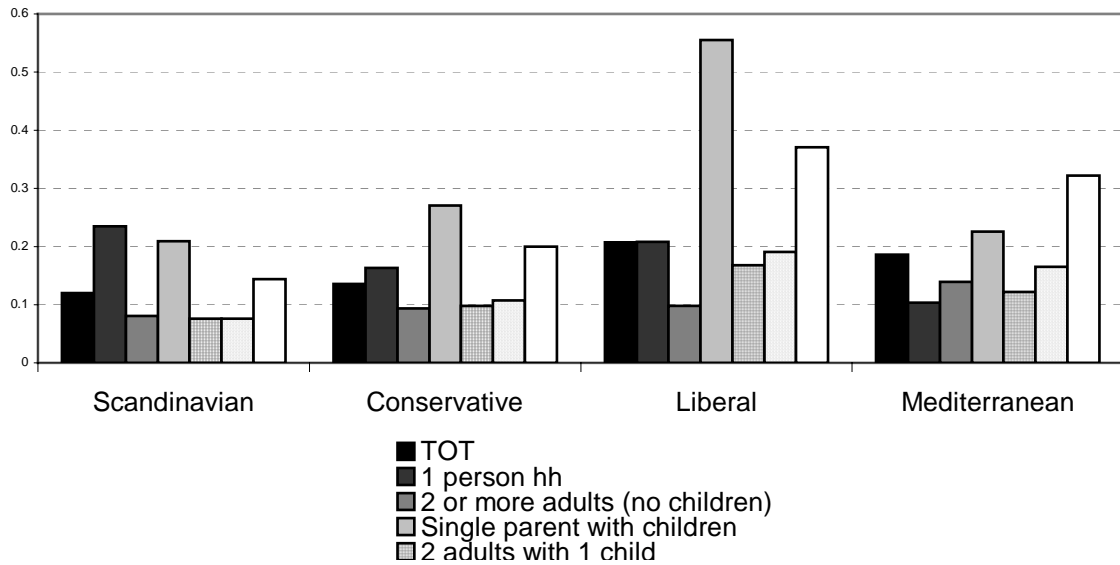
*Note: Social Democratic: Denmark, Finland, and Netherlands; Conservative: Belgium, France, and Austria,; Liberal: Great Britain and Ireland; Mediterranean: Greece, Italy, Spain, and Portugal

Figure 2: Means of poverty status derived from 60% of total net equivalised household income by welfare regimes*, age and two household types (weighted data)
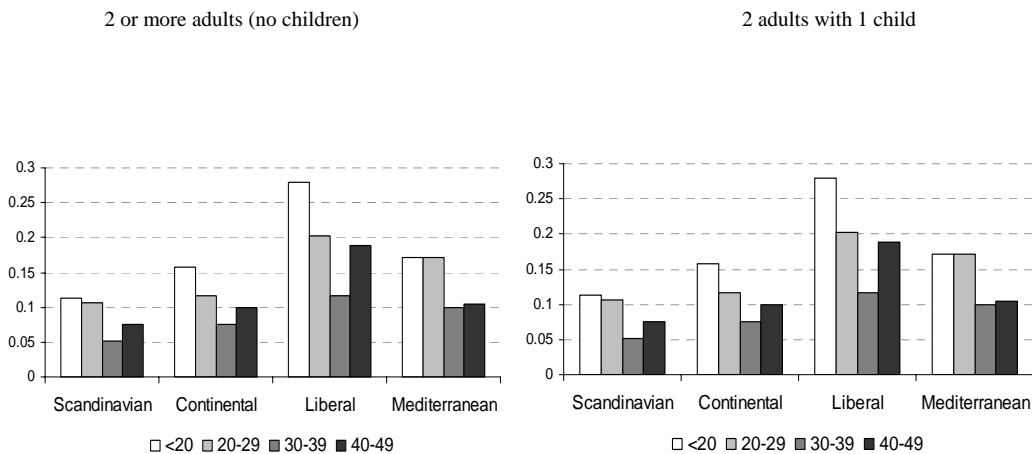
2 or more adults (no children)   2 adults with 1 child

*Note: Social Democratic: Denmark, Finland, and Netherlands; Conservative: Belgium, France, and Austria,; Liberal: Great Britain and Ireland; Mediterranean: Greece, Italy, Spain, and Portugal

Table 1: Information from ECHP sample used to construct deprivation index

Deprivation indexes	Information used
Affordability	1. Household's ability to make ends meet
	2. Household can afford to keep house warm
	3. Household can afford week holiday away from home
	4. Household can afford replacing worn out furniture
	5. Household can afford to buy new, rather than 2nd hand clothes
	6. Household can afford to eat out, if want to
	7. Household can afford to invite friends over
	8. Household can afford to pay bills and utilities
	9. General feeling about economic situation
House characteristics	10. Shortage of space in the house
	11. Accommodation is too dark or insufficient lighting
	12. Lack of adequate heating
	13. Leaking roof of the house
	14. Dwelling has damp walls, floors or foundations
	15. Dwelling has rot in windows
Environmental	16. Noise from outside neighbours
	17. Pollution or grime
	18. Crime or vandalism
Luxury durables	19. Possession of a car
	20. Possession of a video recorder
	21. Possession of a micro wave
	22. Possession of a dishwasher
Essential durables	23. Bath and shower in the dwelling
	24. TV colours
	25. Telephone

Table 2: Deprivation indexes by welfare regimes (weighted data)

|	Total deprivation index	Affordability	House characteristics	Environmental	Luxury durables	Essential durables
Social democratic	0.084	0.133	0.080	0.184	0.064	0.010
Conservative	0.098	0.168	0.109	0.178	0.071	0.011
Liberal	0.107	0.174	0.078	0.116	0.148	0.037
Mediterranean	0.153	0.249	0.159	0.216	0.201	0.036

Figure 3: Deprivation index (total) by welfare regimes and household type (weighted data)
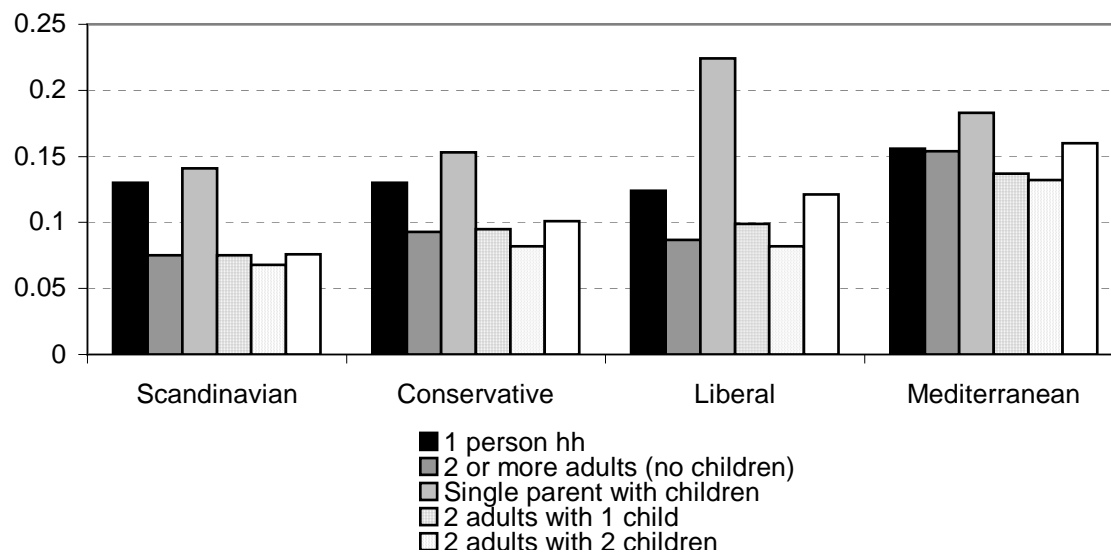
Figure 4: Deprivation index by welfare regimes and age classes (weighted data)
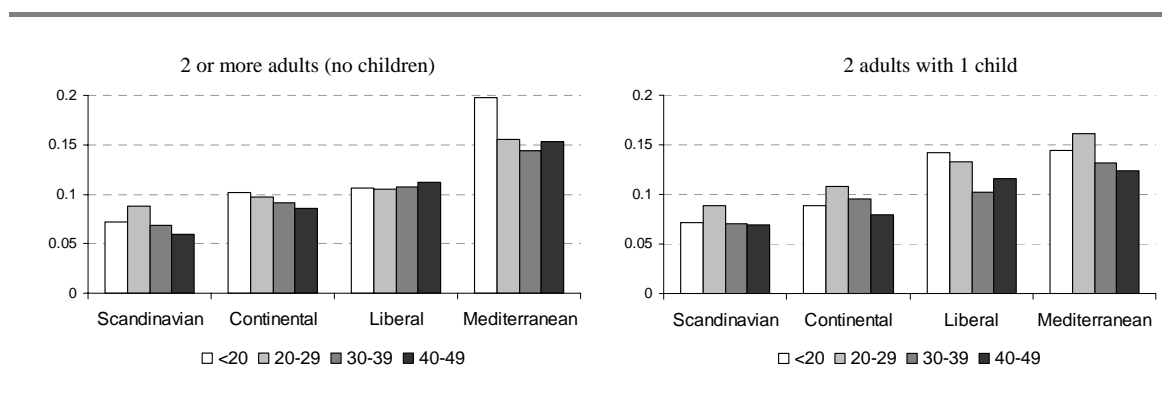
Table 3: Descriptive statistics of observed (pre-treatment) characteristics, by welfare regime and treatment status. "Treated" refers to women experiencing a childbirth, "Untreated" refers to women who did not. t-statistics (in parenthesis) refers to significance of the difference in means between the groups of treated and untreated women.

	Scandinavian Welfare Regime			Conservative Welfare Regime			Liberal Welfare Regime			Mediterranean Welfare Regime		
	Treated	Untreated	t	Treated	Untreated	t	Treated	Untreated	t	Treated	Untreated	t
Age	29.71	34.11	(18.54)	28.57	33.39	(20.76)	28.96	32.69	(13.44)	28.38	32.55	(22.99)
Married	0.67	0.54	(-10.35)	0.67	0.53	(-10.93)	0.71	0.51	(-13.45)	0.86	0.58	(-30.79)
Cohabiting	0.27	0.16	(-11.93)	0.23	0.11	(-14.20)	0.14	0.09	(-5.98)	0.04	0.02	(-6.27)
N. of children	0.88	1.14	(8.62)	0.86	1.21	(11.13)	1.04	1.27	(5.34)	0.64	1.08	(19.91)
High educated	0.32	0.23	(-8.52)	0.34	0.21	(-12.74)	0.30	0.26	(-2.67)	0.19	0.13	(-9.15)
Deprivation Index	0.077	0.082	(2.42)	0.109	0.102	(-2.55)	0.132	0.124	(-1.89)	0.146	0.149	(1.29)
Household income	15513	13257	(-11.94)	15321	13785	(-7.02)	14236	13026	(-3.86)	9887	8630	(-10.78)
Employed	0.60	0.54	(-4.34)	0.67	0.57	(-8.04)	0.55	0.56	(0.41)	0.48	0.44	(-4.67)
Inactive	0.30	0.26	(-4.27)	0.29	0.28	(-1.41)	0.43	0.34	(-6.13)	0.50	0.41	(-8.95)
Student	0.05	0.15	(10.93)	0.03	0.14	(13.06)	0.02	0.10	(9.31)	0.02	0.15	(19.07)

Table 4: Estimated average effects of childbearing on poverty status and deprivation indexes by welfare regime. t-statistics (in parenthesis) refers to significance of the effects.

	Scandinavian Welfare Regime		Conservative Welfare Regime		Liberal Welfare Regime		Mediterranean Welf. Regime	
POVERTY STATUS	Effect	t	Effect	T	Effect	t	Effect	t
OECD equivalence scale	0.016	(1.246)	0.028	(3.169)	0.056	(3.773)	0.033	(4.062)
Fuchs equivalence scale	0.011	(1.903)	0.041	(4.178)	0.071	(4.552)	0.045	(5.308)
DEPRIVATION INDEX								
Affordability	0.003	(1.244)	0.008	(1.511)	0.023	(2.998)	0.011	(2.303)
Household Characteristics	0.009	(1.898)	0.008	(1.049)	-0.009	(-1.019)	0.015	(2.861)
Environmental	0.010	(1.809)	0.025	(2.471)	0.001	(0.095)	0.010	(1.318)
Luxuries & Durables	-0.001	(-0.068)	0.001	(0.121)	0.009	(0.814)	0.009	(1.392)
Essentials	-0.007	(-1.240)	-0.002	(-0.861)	0.006	(1.081)	0.006	(1.593)
Total deprivation index	0.003	(1.244)	0.006	(2.007)	0.004	(0.768)	0.011	(3.779)